

OIKE

RAW SEQUENCE LISTING

DATE: 11/02/2001

PATENT APPLICATION: US/09/815,242

TIME: 12:27:40

Input Set : F:\SEQLIST_FINAL_9PM

Output Set: N:\CRF3\11022001\I815242.raw

ENTERED

4 <110> APPLICANT: Haselbeck, Robert
 5 Ohlsen, Kari L.
 6 Zyskind, Judith W.
 7 Wall, Daniel
 8 Trawick, John D.
 9 Carr, Grant J.
 10 Yamamoto, Robert T.
 11 Xu, H. Howard
 14 <120> TITLE OF INVENTION: Identification of Essential Genes in
 15 Prokaryotes
 17 <130> FILE REFERENCE: ELITRA.011A
 C--> 19 <140> CURRENT APPLICATION NUMBER: US/09/815,242
 C--> 19 <141> CURRENT FILING DATE: 2001-03-21
 19 <150> PRIOR APPLICATION NUMBER: 60/191,078
 20 <151> PRIOR FILING DATE: 2000-03-21
 22 <150> PRIOR APPLICATION NUMBER: 60/206,848
 23 <151> PRIOR FILING DATE: 2000-05-23
 25 <150> PRIOR APPLICATION NUMBER: 60/207,727
 26 <151> PRIOR FILING DATE: 2000-05-26
 28 <150> PRIOR APPLICATION NUMBER: 60/242,578
 29 <151> PRIOR FILING DATE: 2000-10-23
 31 <150> PRIOR APPLICATION NUMBER: 60/253,625
 32 <151> PRIOR FILING DATE: 2000-11-27
 34 <150> PRIOR APPLICATION NUMBER: 60/257,931
 35 <151> PRIOR FILING DATE: 2000-12-22
 37 <150> PRIOR APPLICATION NUMBER: 60/269,308
 38 <151> PRIOR FILING DATE: 2001-02-16
 41 <160> NUMBER OF SEQ ID NOS: 14110
 43 <170> SOFTWARE: FastSEQ for Windows Version 4.0
 45 <210> SEQ ID NO: 1
 46 <211> LENGTH: 23
 47 <212> TYPE: DNA
 48 <213> ORGANISM: Artificial Sequence
 50 <220> FEATURE:
 51 <223> OTHER INFORMATION: DNA primer
 53 <400> SEQUENCE: 1
 54 cagcagtcctg agttataaaa tag
 56 <210> SEQ ID NO: 2
 57 <211> LENGTH: 18
 58 <212> TYPE: DNA
 59 <213> ORGANISM: Artificial Sequence
 61 <220> FEATURE:
 62 <223> OTHER INFORMATION: DNA primer
 64 <400> SEQUENCE: 2
 65 tggtttatca gaccgctt
 67 <210> SEQ ID NO: 3
 68 <211> LENGTH: 29

23

18

RAW SEQUENCE LISTING

DATE: 11/02/2001

PATENT APPLICATION: US/09/815,242

TIME: 12:27:40

Input Set : F:\SEQLIST_FINAL_9PM

Output Set: N:\CRF3\11022001\I815242.raw

```

69 <212> TYPE: DNA
70 <213> ORGANISM: Artificial Sequence
72 <220> FEATURE:
73 <223> OTHER INFORMATION: DNA primer
75 <400> SEQUENCE: 3
76 ttctgtttta tcagaccgct tctgcgttc 29
78 <210> SEQ ID NO: 4
79 <211> LENGTH: 18
80 <212> TYPE: DNA
81 <213> ORGANISM: Artificial Sequence
83 <220> FEATURE:
84 <223> OTHER INFORMATION: DNA primer
86 <400> SEQUENCE: 4
87 acaatttcac acagcctc 18
89 <210> SEQ ID NO: 5
90 <211> LENGTH: 26
91 <212> TYPE: DNA
92 <213> ORGANISM: Artificial Sequence
94 <220> FEATURE:
95 <223> OTHER INFORMATION: DNA primer
97 <400> SEQUENCE: 5
98 gtcggcgata taggcgccag caaccg 26
100 <210> SEQ ID NO: 6
101 <211> LENGTH: 24
102 <212> TYPE: DNA
103 <213> ORGANISM: Artificial Sequence
105 <220> FEATURE:
106 <223> OTHER INFORMATION: DNA primer
108 <400> SEQUENCE: 6
109 ataatcgagc atgagtatca tacg 24
111 <210> SEQ ID NO: 7
112 <211> LENGTH: 20
113 <212> TYPE: DNA
114 <213> ORGANISM: Artificial Sequence
116 <220> FEATURE:
117 <223> OTHER INFORMATION: DNA primer
119 <400> SEQUENCE: 7
120 atgcgtccgg cgtagaggat 20
122 <210> SEQ ID NO: 8
123 <211> LENGTH: 245
124 <212> TYPE: DNA
125 <213> ORGANISM: Enterococcus faecalis
127 <400> SEQUENCE: 8
128 ctgataatgg acgagtttcc atgattttta cgatgtctcc aactttcgct gtgttggttt 60
129 catcatgcgc ttatatattt ttagaatatt tcatacgttt gccatagata gggtaggttt 120
130 tctttgtttc aacgacaact gtgattgttt tatccatttt gtctgatacc acacgacctt 180
131 ggtaaaccttt acgttgattt ctttcttcag tcatacgcgt ttggcctcct tccactatta 240
132 gttag 245
134 <210> SEQ ID NO: 9

```

RAW SEQUENCE LISTING

DATE: 11/02/2001

PATENT APPLICATION: US/09/815,242

TIME: 12:27:40

Input Set : F:\SEQLIST_FINAL_9PM

Output Set: N:\CRF3\11022001\I815242.raw

```

135 <211> LENGTH: 268
136 <212> TYPE: DNA
137 <213> ORGANISM: Enterococcus faecalis
139 <400> SEQUENCE: 9
140 ctcttcttgc aataacttgt taaccacacc tgggtttgct tgtccacgag ttgctttcat      60
141 aatttgtcca acaaggaaac caactgcacg gtcttttccg tttttaagt catcaattga      120
142 ttgttggttg ttgtctaaaa cttcgtaaat catttgtaat aattgcgctg gatcagataa      180
143 ctgaacaagg ccttttgctt cgacaacttc tttagcgtct ccaccgtttt caattaactc      240
144 tttgaacact ttcttcgcaa ttttcgag                                     268
146 <210> SEQ ID NO: 10
147 <211> LENGTH: 245
148 <212> TYPE: DNA
149 <213> ORGANISM: Enterococcus faecalis
151 <400> SEQUENCE: 10
152 ctgataatgg acgagtttcc atgattttta cgatgtctcc aactttcgtt gtgttggttt      60
153 catcatgcgc tttatatatt ttagaatatt tcatacgttt gccatagata gggtggtttt      120
154 tctttgtttc aacgacaact gtgattgttt tatccatttt gtctgatacc acacgacctt      180
155 ggtaaacctt acgttgattt ctttcttcag tcatacgcgt ttggcctcct tccactatta      240
156 gttag                                     245
158 <210> SEQ ID NO: 11
159 <211> LENGTH: 532
160 <212> TYPE: DNA
161 <213> ORGANISM: Enterococcus faecalis
163 <400> SEQUENCE: 11
164 ctgtagtgtt accaatacca taaatgtaag taagagaaac tactacacgt ttgtcacgag      60
165 ggatgtctac tcctgcaata cgagccatta ttcgttacac ctctaatta tccttgacgt      120
166 tgtttatgtt ttggatttgc tgggcaaata accataacac gtcctttacg gcgaattact      180
167 ttacaatgtt cacacattgg ttttactgat ggtcttactt tcatgataat acctcctgtg      240
168 gttttacgga gtacaattat ttaaagcgat aagtaatacy gccacgcgtt aaatcatacy      300
169 gtgataattc aactgttact ttgtcaccag gtaagatacy gatgtagtgc atacggattt      360
170 tacctgaaac agtagcaaga acttggtgtc cattttctag ttcgacttta aacattgcat      420
171 tcggcaaaag ttcgacgact gtaccttcga cttcaatcat atcttctttt gccacgcaca      480
172 gtacctcctt gtacttggtt cgcgttttca cacgataaac ggcggaactc ca          532
174 <210> SEQ ID NO: 12
175 <211> LENGTH: 236
176 <212> TYPE: DNA
177 <213> ORGANISM: Enterococcus faecalis
179 <400> SEQUENCE: 12
180 ctgtgtgaat tgaaatgtta acacggtttg cagcgcgttc gatttcaatt gtagatacag      60
181 cagcatcagc aagttttgtt gcgataaatt tacggattct taaatcttcg tgtaagaatt      120
182 cagcatactc tttttcagca taccatttcg catcccagtc gcggatgatg cctacacgca      180
183 ttccaattgg atgtactttt tgaccactcg attgtccctc ctcttaaatg tttaag          236
185 <210> SEQ ID NO: 13
186 <211> LENGTH: 270
187 <212> TYPE: DNA
188 <213> ORGANISM: Enterococcus faecalis
190 <400> SEQUENCE: 13
191 ctgaaccttt tgcacgagga cggaacgtt tcattgttgg tccttcgtta acaaatgctt      60
192 cagatacgac taagctttca acgtctaagt caaagtgtt ttctgcgtta gcaactgctg      120

```

RAW SEQUENCE LISTING

DATE: 11/02/2001

PATENT APPLICATION: US/09/815,242

TIME: 12:27:40

Input Set : F:\SEQLIST_FINAL_9PM

Output Set: N:\CRF3\11022001\I815242.raw

```

193 acattaaaac tttttcaatg attccagcag acttggttcg tgtgaatttc aagattgaaa      180
194 ttgcatccgc aacgcttttc cctctgataa gatcgattac taaacgtgct ttacgagggtg      240
195 aagtgcgaac tgtttttgca gttgcttttag      270
197 <210> SEQ ID NO: 14
198 <211> LENGTH: 269
199 <212> TYPE: DNA
200 <213> ORGANISM: Enterococcus faecalis
202 <400> SEQUENCE: 14
203 ctcttcttgc aataacttgt taaccacacc tgggttttgc tgtccacgag ttgctttcat      60
204 aatttgtcca acaaggaaac caactgcaca ggtcttttcc gtttttaaag tcatcaattg      120
205 attgttggtt gttgtctaaa acttcgttaa tcattggtaa taattgcgct ggatcagata      180
206 actgaacaag gccttttgcg tcgacaactt ctttagcgct tccaccgttt tcaattaact      240
207 ctttgaacac tttcttcgca attttcgag      269
209 <210> SEQ ID NO: 15
210 <211> LENGTH: 245
211 <212> TYPE: DNA
212 <213> ORGANISM: Enterococcus faecalis
214 <400> SEQUENCE: 15
215 ctgataatgg acgagtttcc atgattttta cgatgtctcc aactttcgct gtgttggttt      60
216 catcatgcgc tttatatttt ttagaatatt tcatacgttt gccatagata ggggtggtttt      120
217 tctttgtttc aacgacaaact gtgattgttt tatccatttt gtctgatacc acacgacott      180
218 ggtaaaacttt acgttgattt ctttcttcag tcatacgctt ttggcctcct tccactatta      240
219 gttag      245
221 <210> SEQ ID NO: 16
222 <211> LENGTH: 372
223 <212> TYPE: DNA
224 <213> ORGANISM: Enterococcus faecalis
226 <400> SEQUENCE: 16
227 cttttgtaac gtccattggt acagtaccag ttttaggggt tggcattaaa ctttttggtc      60
228 ctaagacacg gcctaattta ccaactgtag ccacatgtc aggagtcgca acaactacgt      120
229 caaagtcgaa ccatccacct tggatttttg caaccatgtc gtcgtcgctt acgaaatctg      180
230 caccagcagc ttcagcttct ttagcttttt cgccttttag gaatactaaa acagtttgtg      240
231 ttttaccagt tccgtttgga agcacaactg ctccacggat ttgttgggtc gcttttttag      300
232 ggtcaacggt caatttgtaa gcaacttcaa ctgttgcgtc aaatttcgcg atgtttgtat      360
233 cttttgctaa ag      372
235 <210> SEQ ID NO: 17
236 <211> LENGTH: 314
237 <212> TYPE: DNA
238 <213> ORGANISM: Enterococcus faecalis
240 <400> SEQUENCE: 17
241 ctacttcttt gagtaagtgt ggaataaaaa ttattctacg atgataccca tgcttcgtgc      60
242 agttcctgca accatgcgca ttgctgcttc aacgtcagcg gcgttttaggt ctgccatttt      120
243 aagttcagcg atttctttca cttgatcgct tgaaactgtt gcaactttag ttttgtttgg      180
244 ttcacctgaa cttttttcga tttttgcagc ttttttcaat aatactgcag caggtggtgt      240
245 ttttagtaatg aatgtaaatg aacgatcttc atatacagag attactactg gaataatcaa      300
246 gcctgcttgg tcag      314
248 <210> SEQ ID NO: 18
249 <211> LENGTH: 351
250 <212> TYPE: DNA

```

RAW SEQUENCE LISTING

DATE: 11/02/2001

PATENT APPLICATION: US/09/815,242

TIME: 12:27:40

Input Set : F:\SEQLIST_FINAL_9PM

Output Set: N:\CRF3\11022001\I815242.raw

```

251 <213> ORGANISM: Enterococcus faecalis
253 <400> SEQUENCE: 18
254 tgatttgatt gtgattaaag attttttcgc tccaggaatg tttcctttga ttaagataac      60
255 atttctttct acgtccactt taacaacttc aaggttttga attgttacgc ggtcgccacc      120
256 catacggccg gctagtcgtt tatttttaaa tacacggtta ggcgctactg gacccattga      180
257 cccaggacga cggtgataac gagaaccatg agacataggt ccgcggcttt ggccgtgacg      240
258 tttgattgcc ccttggaatc ctttaccttt cgtagtacct gtaacatcaa caacgtctcc      300
259 tgcttgaaa acatctactt tgatttcttt acctacttca tattctccta g              351
261 <210> SEQ ID NO: 19
262 <211> LENGTH: 481
263 <212> TYPE: DNA
264 <213> ORGANISM: Enterococcus faecalis
266 <400> SEQUENCE: 19
267 ctgttttacc attaccagat gaagtaccac gtccaacacg gttacgtact tggcgtgagc      60
268 cctcagcagg ttttaattca tgaagtttca taggtttggc acctccttaa gcaatcttct      120
269 attacaaatc tataaatctt aaacttcttc tacgtccact aaatgtgaaa tagtgtaaac      180
270 catacctttg attgcttcat tggcagggtt tgtaacagta ctattcactt tacctaaacc      240
271 taacgcttta actgtagcac gttgggtttg aggacgtccg ataacactgc gttttaaaagt      300
272 aatttttaat tcagccatta tttttgtcct ccttaaccga taatttcttc tacagattta      360
273 ccgcgaagtg ctgccacttc ttcggcacgt tttaattgtt ttagaccttc aacagttgcg      420
274 cgaacaacgt taataggtgt gtttgaacct agtgatttag atgtaatatc tgctacacca      480
275 g                                          481
277 <210> SEQ ID NO: 20
278 <211> LENGTH: 544
279 <212> TYPE: DNA
280 <213> ORGANISM: Enterococcus faecalis
282 <400> SEQUENCE: 20
283 tttacgttgg cttgatgtgc gtcctaattt acggttaactc acgttggggtt ccttccttcg      60
284 tttctgttct cagcagccac tgctgttaag caggactgga aacttcgtaa aagtcttaaat      120
285 cgtccttacg taatcctaata cctagatcat gcaatttaag ttttacttct tcaagagatt      180
286 tacgacctaa attacgtact ttgatcattt ctgggttcaga tttgtttgta agttcttgta      240
287 cagtattaat gctgcacgt tttaaacagt tatatgaacg aactgataaa tcaagttctt      300
288 caatcgtcac ttctagcatt ttctcttttt gagtttcttc tttttccacc atgatttcag      360
289 cgtttttcgc ttcgtcagta aggtttacaa agatatctaa atgctcagtc atgattttcg      420
290 cagctaaact tagtgcttct tgaggaatga ttgaaccatc tgtccatatt tccattgtta      480
291 atttgtcgaa atcatcacga cgaccaacac gtgtattttc tacttggtag ttaacacgac      540
292 gaac                                          544
294 <210> SEQ ID NO: 21
295 <211> LENGTH: 265
296 <212> TYPE: DNA
297 <213> ORGANISM: Enterococcus faecalis
299 <400> SEQUENCE: 21
300 cttgttcacg caatactgtt ttgatgcgtg caatcgattg acgtacttct ttaatacgtg      60
301 cagtgttttc taattgacct gttgctaatt ggaatcttaa gttgaacaat tcttctttta      120
302 attgtttttc tttatctagc atttcggcag tgggttaattc tctgatttct ttaaccttca      180
303 ttcgattcac caccatttcc ctacagtttt acgatcttag tttttaccgg caatttgtga      240
304 gatgcaagac gaagagcttc acgag              265
306 <210> SEQ ID NO: 22
307 <211> LENGTH: 407

```

Use of n and / or Xaa has been detected in the Sequence Listing. Review the Sequence Listing to ensure a corresponding explanation is present in the <220> to <223> fields of each sequence using n or Xaa.

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/815,242

DATE: 11/02/2001

TIME: 12:27:41

Input Set : F:\SEQLIST_FINAL_9PM

Output Set: N:\CRF3\11022001\I815242.raw

L:19 M:270 C: Current Application Number differs, Replaced Current Application No

L:19 M:271 C: Current Filing Date differs, Replaced Current Filing Date

L:1621 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:118

L:1634 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:119

L:1800 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:132

L:2504 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:191

L:3390 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:266

L:3404 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:267

L:3421 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:268

L:3438 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:269

L:3467 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:271

L:3501 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:273

L:3503 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:273

L:3516 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:274

L:3536 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:275

L:3550 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:276

L:3551 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:276

L:3576 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:278

L:3606 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:280

L:3645 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:283

L:3673 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:285

L:3704 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:287

L:3750 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:290

L:3765 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:291

L:3786 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:292

L:3802 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:293

L:3816 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:294

L:3842 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:296

L:3850 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:296

L:3851 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:296

L:3912 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:301

L:3928 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:302

L:3977 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:306

L:4114 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:319

L:4115 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:319

L:4311 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:337

L:4468 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:351

L:4526 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:356

L:4551 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:358

L:4565 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:359

L:4651 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:366

L:4708 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:371

L:4790 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:378

L:4807 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:379

L:4808 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:379

L:4823 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:380

L:4991 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:395

L:5021 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:397

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/815,242

DATE: 11/02/2001

TIME: 12:27:41

Input Set : F:\SEQLIST_FINAL_9PM

Output Set: N:\CRF3\11022001\I815242.raw

L:5254 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:419
L:5776 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:468
L:5790 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:469
L:5833 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:472
L:243788 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:6892
L:245196 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:6903
L:247967 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:6929
L:256744 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:7025
L:259034 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:7044
L:270248 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:7138
L:270804 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:7143
L:273123 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:7165
L:294264 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:7361